B6.Cg-Park7\textsuperscript{tm1Shn} Gpx1\textsuperscript{tm1Ysh} Prkn\textsuperscript{tm1Shn}/MgoldJ

Stock No: 023968 | Parkin -/-DJ-1/-/Gpx1-/-

**Congenic, Targeted Mutation**

**CRYO RECOVERY**

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.

**Also Known As:** Parkin -/-DJ-1/-/Gpx1-/-, B6.Cg-Park7\textsuperscript{tm1Shn} Gpx1\textsuperscript{tm1Ysh} Park2\textsuperscript{tm1Shn}/MgoldJ

This triple knockout strain is useful in studies of dopaminergic neuron physiology, regulation of striatal dopamine and serotonin, and Parkinson's disease.

**Donating Investigator**

Matthew Goldberg, University of Texas Southwestern Medical Center at Dallas

**GENETIC OVERVIEW**

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prkn\textsuperscript{tm1Shn}</td>
<td></td>
</tr>
<tr>
<td><strong>Allele Type</strong></td>
<td><strong>Gene Symbol</strong></td>
</tr>
<tr>
<td>Targeted (Null/Knockout)</td>
<td>Prkn</td>
</tr>
<tr>
<td>Park7\textsuperscript{tm1Shn}</td>
<td></td>
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<td><strong>Allele Type</strong></td>
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<td>Park7</td>
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<tr>
<td>Gpx1\textsuperscript{tm1Ysh}</td>
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<td>Targeted (Null/Knockout)</td>
<td>Gpx1</td>
</tr>
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**RESEARCH APPLICATIONS**

Neurobiology Research
Details

Detailed Description
In the brains of patients with Parkinson’s disease, the antioxidant enzyme glutathione peroxidase 1 activity level is diminished. Mutations in human PARK7 and PARK2 resulting loss of function have been linked to types of autosomal recessive Parkinson’s disease. These mice carry targeted mutations for the Park7, Gpx1 and Park2 genes. Mice that are homozygous for all 3 of the targeted mutations are viable and fertile. In triple mutant mice, 12 to 18 months of age, striatal dopamine and serotonin levels are elevated, but with normal nigral neuron numbers. Parkin<sup>−/−</sup> DJ-1<sup>−/−</sup> Gpx1<sup>−/−</sup> exhibit enhanced motor behavior and are able to outperform wildtype controls in the rotarod test. During backcrossing, the Y chromosome may not have been fixed to the C57BL/6J genetic background.

Development

Control Suggestions

Selected References

Genetics

Prkn<sup>Im1Shn</sup>

Park7<sup>Im1Shn</sup>

Gpx1<sup>Im1YSh</sup>

Disease/Phenotype

Disease Terms

Research Areas By Genotype

Mammalian Phenotype Terms by Genotype
Genotyping Protocols
Standard PCR: Gpx1<sup>tm1Ysh<sub>alternate1</sub></sup>
High Resolution Melting: Park7<sup>tm1Shn</sup>
MELT: Park2<sup>tm1Shn</sup>
Genotyping resources and troubleshooting

Breeding Considerations
When maintaining a live colony, these mice can be bred as homozygotes for each targeted mutation.
Additional Breeding and Husbandry Support

Citation
When using the Parkin<sup>-/-</sup>, Pdx1<sup>-/-</sup>, Gpx1<sup>-/-</sup> mouse strain in a publication, please cite the originating article(s) and include JAX stock #023968 in your Materials and Methods section.

Animal Health Reports
Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, G200

Pricing & Availability

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.

<table>
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<tr>
<th>SERVICE</th>
<th>GENOTYPE</th>
<th>PRICE</th>
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<tbody>
<tr>
<td>Cryo Recovery</td>
<td>Homozygous for Park7&lt;sup&gt;tm1Shn&lt;/sup&gt;, Homozygous for Gpx1&lt;sup&gt;tm1Ysh&lt;/sup&gt;, Homozygous for Park2&lt;sup&gt;tm1Shn&lt;/sup&gt;</td>
<td>$2,595.00</td>
</tr>
</tbody>
</table>

We will fulfill your order by providing at least two carriers for each strain ordered. The total number, sex, and genotypes provided will vary, although typically 8 or more animals are provided. Please check genotypes which will be recovered. While the genotypes of all animals produced will be communicated to you prior to scheduling shipment, the genotypes of animals provided may not reflect the mating scheme and genotypes described in the strain description. Animals are typically ready to ship in 11-14 weeks. If a second recovery is required to produce the minimum number of animals, then delivery time would increase to approximately 25 weeks. If we fail to produce animals of the correct genotype, you will not be charged. We cannot guarantee the reproductive success of mice shipped to your facility. If the mice are lost after the first three days (post-arrival) or do not produce progeny at your facility, a new order and fee will be necessary.
Cryorecovery to establish a Dedicated Supply for greater quantities of mice. Mice recovered can be used to establish a dedicated colony to contractually supply you mice according to your requirements. Price by quotation.

### Related Products and Services

| Frozen Mouse Embryo | $2,595.00 per straw or vial |

### Payment Terms and Conditions

Terms are granted by individual review and stated on the customer invoice(s) and account statement. These transactions are payable in U.S. currency within the granted terms. Payment for services, products, shipping containers, and shipping costs that are rendered are expected within the payment terms indicated on the invoice or stated by contract. Invoices and account balances in arrears of stated terms may result in The Jackson Laboratory pursuing collection activities including but not limited to outside agencies and court filings.

### The Jackson Laboratory's Genotype Promise

The Jackson Laboratory has rigorous genetic quality control and mutant gene genotyping programs to ensure the genetic background of JAX® Mice strains as well as the genotypes of strains with identified molecular mutations. JAX® Mice strains are only made available to researchers after meeting our standards. However, the phenotype of each strain may not be fully characterized and/or captured in the strain data sheets. Therefore, we cannot guarantee a strain’s phenotype will meet all expectations. To ensure JAX® Mice will meet the needs of individual research projects or when requesting a strain that is new to your research, we suggest ordering and performing tests on a small number of mice to determine suitability for your particular project.

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**Terms of Use**

General Terms and Conditions

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**Licensing Information**

Phone: 207-288-6470
Email: TechTran@jax.org

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Related Strains

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All Related Strains
Leading the search for

TOMORROW'S CURES